



Educational Topic

Research Engineer - Icing Research

Related Job Titles:

Aerospace Engineer, Aeronautics Engineer, Meteorological Aviation Engineer

Job Description:

A Research Engineer performing icing research in the refrigerated wind tunnel creates and conducts experiments that help pilots and aircraft manufacturers understand more about in-flight icing and its effects on flight characteristics of an airplane. Sometimes the work of Icing Researchers might take them onboard an icing research aircraft for the Ice-Contaminated Tailplane Stall program. This researcher uses very sophisticated computer equipment to take measurements of the forces that are affected by icing on surfaces of an airplane. After creating and running the experiment, icing researchers then draft their report and present the information to other researchers, as well as aeronautical societies, aircraft manufacturers, and pilots. Their results greatly inform pilots about when to expect airframe icing, what icing feels like to the pilot at the controls, how an airplane reacts to different types of icing, and how a pilot should react to the different types of icing.

Interests / Abilities:

- Do like to think of multiple explanations for why something happened the way it did?
- Do you love aviation and aeronautics?
- Do you like to observe things in great detail?
- Do you enjoy math?
- Do you find it easy to read and understand mathematical graphs and charts?

Suggested School Subjects / Courses:

- Math (algebra, trigonometry)
- Statistics
- Meteorology
- Physics
- English composition
- Computer science

Education / Training Needed:

To perform research, a Masters or Ph.D. level of degree in any of the following: Aeronautical Engineering, Aerospace Engineering, Mechanical Engineering, or Fluid Dynamics (the study of how air flows around an object) from an accredited college or university is required. Experience in and knowledge of Meteorology is very helpful for this position.

Areas of expertise:

- *Fluid Mechanics*: studies the properties of liquids and gases
- *Thermal Science*: the physical study of heat and its properties
- *Meteorology*
- *Aeronautics*

Additional Resources:

- Please take a moment to evaluate this product at:
http://ehb2.gsfc.nasa.gov/edcats/educational_topic
Your evaluation and suggestions are vital to continually improving NASA educational materials.
Thank you.



What can I do right now?

- Revolutionary Vehicle Concepts and Systems student competition
<http://avst.larc.nasa.gov/competitions.html>
- Sample debriefing from the Ice-Contaminated Tailplane Stall program
<http://www.grc.nasa.gov/WWW/K-12/IRT/TIPDeBrief/sld001.htm>
- Tech-Interns.com
<http://www.tech-interns.com/>
- Virtual Skies
<http://virtualskies.arc.nasa.gov>